Severe Weather Awareness Week in Alabama

February 17 -21, 2003

February 17 through 21, 2003, has been proclaimed Severe Weather Awareness Week in Alabama by Governor Bob Riley. The National Weather Service, the American Red Cross, the Alabama Department of Education, and the Alabama Emergency Management Agency urge everyone in Alabama to be weather aware. This special week is a time for all Alabamians to learn or review the proper safety measures necessary for protection during deadly weather. **Your quick action can mean the difference between life and death.**

Throughout the week, the National Weather Service, state, county, and local Emergency Management Agencies, andAmerican Red Cross Chapters in Alabama will be conducting educational activities to help people learn how to prevent injuries and deaths from tornadoes, damaging wind, flash floods, lightning, and hail. Media outlets are asked to promote this week through articles, stories, and interviews to acquaint people with severe weather dangers and the proper safety precautions necessary for survival.

This booklet is full of material about tornadoes including a history of tornadoes in Alabama and ways to defend against them. After nearly every disaster, the story is the same - people survive tornadoes because they had a safety plan and activated it! By taking a few minutes to learn or review tornado safety precautions, you could save your life - or the life of a friend or family member.

Tornadoes are not the only weather dangers we face. Each year, severe thunderstorms and lightning cause millions of dollars in property damage - and KILL! Damaging wind events from severe thunderstorms are much more frequent than tornadoes in Alabama. Lightning has frequently been called "the underrated killer" because it is so common, but deadly! Flooding and flash flooding are often underrated, too, asAlabama found out several years ago when significant flooding and flash flooding ravaged the state.

Wednesday is a special day as we draw attention to getting weather information and responding to severe weather with a **statewide tornado drill,** an opportunity for everyone to practice. We encourage everyone's participation in the drill to make it a meaningful practice for the real thing. Friday is the alternate day for the drill should bad weather occur Wednesday. Alabama's statewide drill is conducted jointly with a number of other southeastern states.

The warning system continues to get better. Better detection with a network of Doppler radars! An Emergency Alert System (EAS) to speed the distribution of warnings! An improved NOAA Weather Radio network so that nearly everyone can be within range of direct weather broadcasts! But all of these efforts **will fail** if we - you, me, your neighbors, everyone - don't know what to do! Everyone needs the knowledge to react quickly and a plan of action when severe weather materializes.

The National Weather Service, the Alabama Emergency Management Agency, and the American Red Cross urge you to participate in the statewide drill and take time during the week to review, update, or create your preparedness plan.

Cover description

The cover is a collection of damage photographs taken on November 10, 2002, across central Alabama. Eleven tornadoes occurred during the evening killing 12 and injuring 100. The photos were selected to draw attention to the need for safety plans at home, at work, and in your car. Photos taken by National Weather Service.

A Message from the National Weather Service

The southeastern United States, including Alabama, is one of the most active weather regions in the world. Several severe weather episodes strike our state each year, some with deadly results. Technology such as Doppler weather radar and more effective communications such as Emergency Alert System and the Internet have greatly improved our ability to provide early warning to Alabama residents. Powerful technology and early warning cannot save lives unless people are prepared, stay informed, and know how to react during severe weather.

That's what this week is all about - time to learn, time to review, time to get ready! WithAlabama in such an active weather region, it is not **IF** we will have more devastating tornadoes, it's simply **WHEN!!**

Kenneth E. Graham, Meteorologist-in-Charge
National Weather Service, Birmingham, AL

A Message from the Alabama Emergency Management Agency

The Alabama Emergency Management Agency (AEMA) joins Governor Bob Riley, local EMAs, the National Weather Service,American Red Cross, and Alabama Department of Education each year in the campaign to educate people in our state about severe weather. Each year we face the threat of natural disasters caused by severe weather. Alabama weather history records loss of life and millions of dollars in property damage caused by severe weather. This is why severe weather awareness is so important. Our goal during this week and beyond is to encourage everyone to learn how you and your family can prepare for severe weather. Discuss preparing for emergencies with your family. We encourage you to make a family preparedness plan and exercise it like you would a home fire drill. Planning ahead could save your life.

Bruce Baughman
Director,AEMA, Clanton, AL

What's Inside

Special Recognition - Our Partners

Severe Weather Awareness Week inAlabama, an annual public awareness campaign to draw attention to severe weather preparedness, is 28 years old. Begun by the National Weather Service following the April 3rd and 4th, 1974, super-outbreak of tornadoes, this week has been observed each year as part of a continuing commitment to improve public education and severe weather awareness. The National Weather Service has traditionally led this week, but, as the week has gained greater prominence, additional partners have joined the public service effort. Improvements to this effort could not have been accomplished without the contribution of many other people and organizations.

In recognition of their commitment to public service and safety, the National Weather Service extends a special thanks to our partners whose contributions to the 2003 edition of Severe Weather Awareness Week inAlabama have made this booklet possible.

American Red Cross

Mercedes-Benz

EHF

RUSSELL CORPORATION

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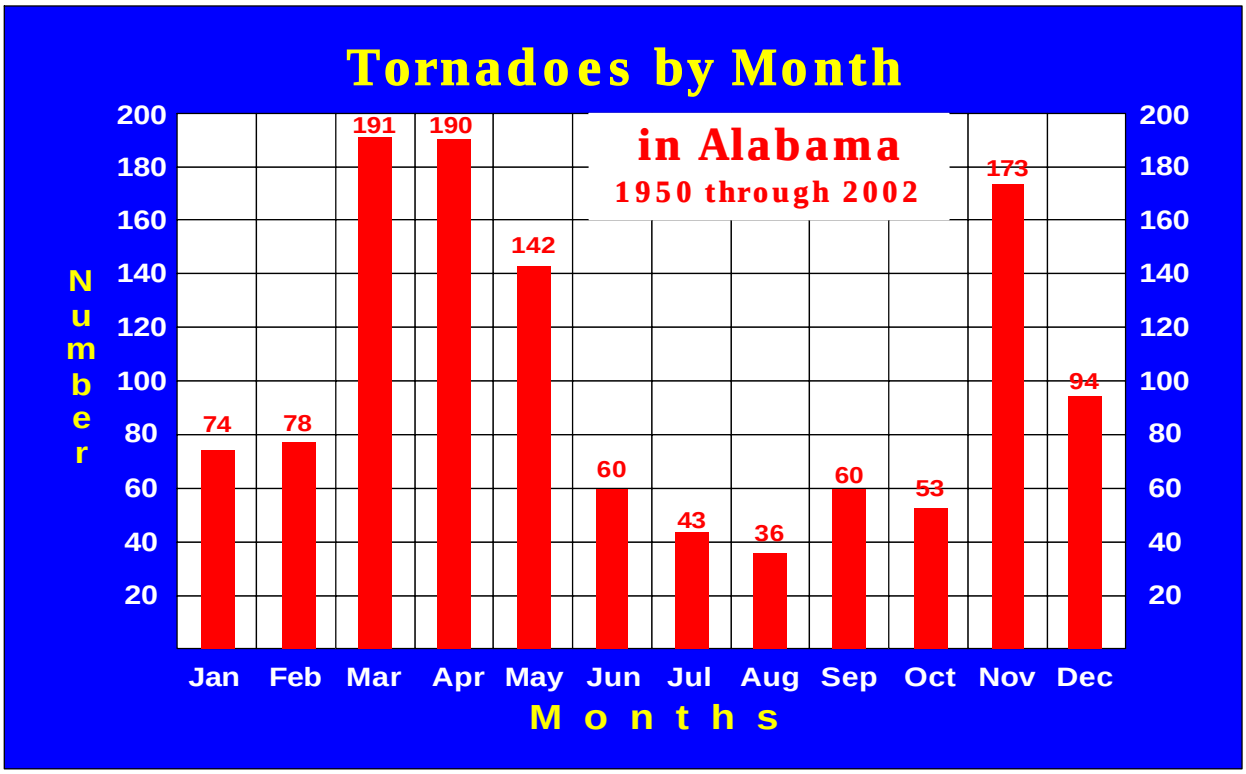


Tornadoes in Alabama

For the third year in a row, the secondary tornado season was the most destructive and most deadly. Twelve people died in eleven tornadoes that ravaged central Alabama on November 10. One person died in a tornado in early November. The 13 deaths ranked Alabama second in the country for tornado deaths for 2002. "With exceptional warnings and the excellent response on the part of Alabamians, the death toll could easily have been much, much higher," said Brian Peters, Warning Coordination Meteorologist with the Birmingham NWS office. "But November 10 again underscores the urgency for people to know severe weather safety measures and be prepared to act when the weather becomes threatening," Peters added.

Much of 2002 had been a quiet year for tornadoes until November. November led the year with 17 tornadoes, 11 of them occurring on November 10. One tornado occurred in March, April, June, and December; three occurred in October; and six in September. Tornadoes occurred on only 11 days during the year with November 10 the biggest single day for the year.

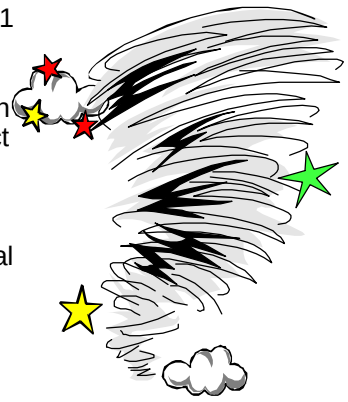
The 37 tornadoes that occurred inAlabama in 2002 was above normal; Alabama can expect 23 tornadoes each year based on records since 1950.

Until September, Alabama had only recorded three tornadoes. But nearby tropical storms brought a number of tornadoes to the state in September and October. Two deadly events in November accounted for 13 tornadoes.

"There have been 1193 tornadoes inAlabama in the last 53 years," said Peters. "Year-to-year variations can be substantial, but the November tornadoes remind us that tornadoes do occur at any time." "Tornadoes are a danger inAlabama, and our key to surviving severe weather is being aware and prepared through individual plans," Peters noted.

Alabama still ranks third in the nation in the number of tornado deaths since 1950.

Historically, Alabama's worst tornado disaster occurred March 21, 1932. Alabama suffered two waves of tornadoes on that balmy Monday afternoon in which 300 people were killed. In more recent history, November 24, 2001, set a record with 36 tornadoes across the state in just 24 hours. Other tornado events with high death tolls included the Oak Grove tornado of April 8, 1998, the Piedmont tornado of March 27, 1994, the Huntsville tornado of November 15, 1989, the Northwest Birmingham tornado of April 4, 1977, the Super Outbreak ofApril 3, 1974, and a tornado that traveled a path from Demopolis to Greensboro to Brent to Wilsonville to Mt Cheaha on May 27, 1973. All of these events tragically remind us of the destructive power of tornadoes and the need for preparedness.



Tornadoes - What Are They?

Tornadoes are violently rotating columns of air that descend from thunderstorms to come in contact with the ground. Tornadoes develop from thunderstorms when the wind variation with height supports rotation of the thunderstorm updraft.

Severe thunderstorms develop when the atmosphere provides the right conditions including:

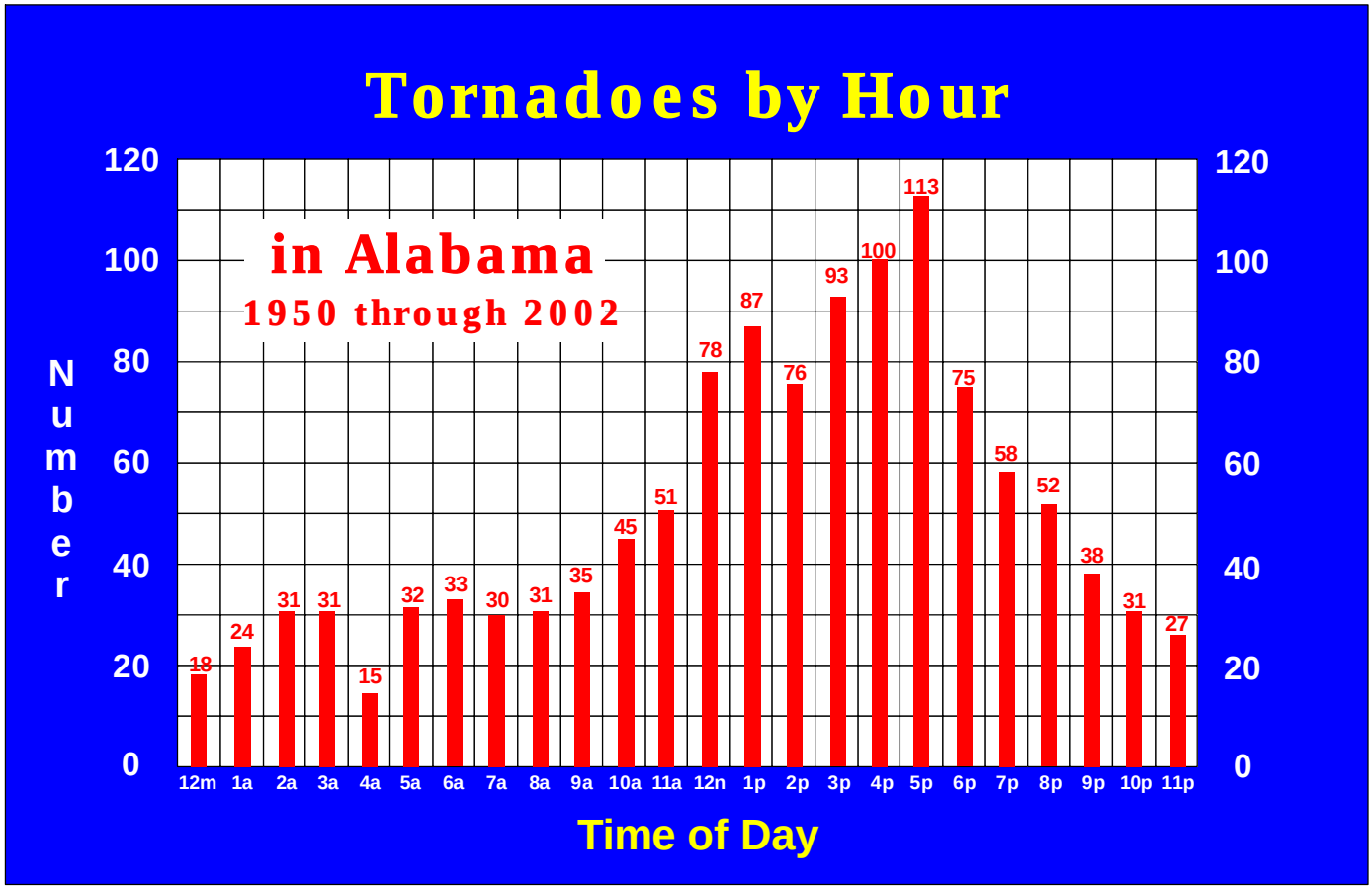
- a supply of warm, humid air flowing out of the Gulf of Mexico at ground level with cool, dry air flowing from the west or southwest at higher levels;
- a low pressure storm system to help lift the air and create thunderstorms;
- an increase of wind speed with height;
- a southeast-to-southwest turning to the wind direction in the lowest 10,000 feet of the atmosphere.

As these conditions come together, severe thunderstorms form and with them the potential for tornadoes.

Severe thunderstorms and tornadoes in Alabama occur most often in the spring months of March, April, and May. A secondary tornado season occurs in the Fall, typically November and early December. But, no month of the year is completely free from tornadoes.

Most tornadoes occur in the afternoon between noon and 8 pm. But tornadoes have occurred in every hour of the day and night, so no time of day is immune.

Springtime tornadoes have wind speeds that vary from as little as 60 miles an hour to speeds approaching 300 miles an hour. Tornadoes move with the thunderstorms that produce them with forward motions varying from nearly a standstill to 70 miles an hour. Most thunderstorms in the spring and fall capable of producing tornadoes travel from the southwest toward the northeast.



Plan Ahead - Your Key to Tornado Survival

Tornadoes develop quickly; the violent ones, responsible for most deaths, tend to move fast. Once a tornadoisunderway,timeforplanninghaspassedandimmediateactionisrequiredtoprotectlife. Ourplanhasto bereadytomeetthetest. PreparingforsevereweatheristhethemeofSevereWeatherAwarenessWeek,sohow dowegoaboutit?

Preparedness plans comeinallsizesasdictatedbyindividualandcollective needs, butitalwayscomes down to the individual. Do you know the basic safety rules? How about your home shelter area; would your children know what to do if home alone? Are plans ready to move elderly or disabledpeople to shelter quickly? Whatisyourbestsourceforobtainingwarninginformation?
Basicsevereweatherpreparednessplansmustinclude:

1. A thoroughknowledgeofsafetyrules.
2. Selectionanddesignationofthebestshelterthatyouhave.
3. Areliablemethodofreceivingwarninginformation.
4. Proper instructions for every person to follow when a watch or warning is issued or if threatening weather develops.
5. Drillstotestandpracticetheplan.

Your local Emergency Management Agency, the National Weather Service, or your local Red Cross Chapter can help you with your planning. Severe weather safety brochures safety films are available upon request. It is important that school officials understand severe local storm warning procedures and the need for tornadodrills. Schoolplans mustincludeproceduresforbusesbecausetheyarevulnerabletooverturninginhigh wind.

The primary missionoftheNationalWeather Service is to warn of impending hazardous weather. Even with today's knowledge and technology, we simply cannot warn of every storm when we are dealing with somethingasvolatileastornadodevelopmentorflashfloods. Stormspotters,radar,andsatellitereports all help, buttornadoes can and dodevelopwithoutbeingdetected. Advance warning timeisoftenonlyafewminutesand maybeonlyafewseconds. Preparednessisthekeyindealingwiththisthreat.

Tornado Survival - Knowing the Terms

Knowing what to do means under-standing terms used in the warning process.

A **TORNADO WATCH** is issued by the National Weather Service when atmospheric conditions favor tornado development. Listen to NOAA Weather Radio or commercial radio and television stations for the latest weather information. Stay informed! This is your time to review safety precautions wherever you are. Stay alert to environmental clues by keeping an eye out for threatening or rapidly changing weather conditions. Be prepared to go quickly to a safe place.

A TORNADO WATCH is normally issued for a large area covering a whole state or a large part of several states. The WATCH is intended to give you time to prepare, time to review safety rules. The sky may be blue, but weather changes could be just over the horizon. Begin preparing when you hear the watch.

A **TORNADO WARNING** is broadcast when a developing tornado has been detected by radar or a tornado has been reported. A TORNADO WARNING is usually issued for one or two counties. If the tornado warning is for your county, you should seek safe shelter immediately.

Before a watch or warning is issued, National Weather Service meteorologists may issue special outlooks and/or place wording within forecasts to alert you to possible severe weather ahead. The intent is to keep people informed and aware.

Remember, tornadoes form quickly! You may have only a few seconds to react and find shelter. When a tornado threatens, your immediate action can save your life! Seconds do save lives! Know what to do!

Do you have a plan for tornado survival at home, at work or in your car?

Tornado Survival - Knowing the Rules

In general, get as low as you can. A basement below ground level or at least on the lowest floor of a building offers the greatest safety. And, put as many walls between yourself and the outside as possible. Avoid windows at all cost!

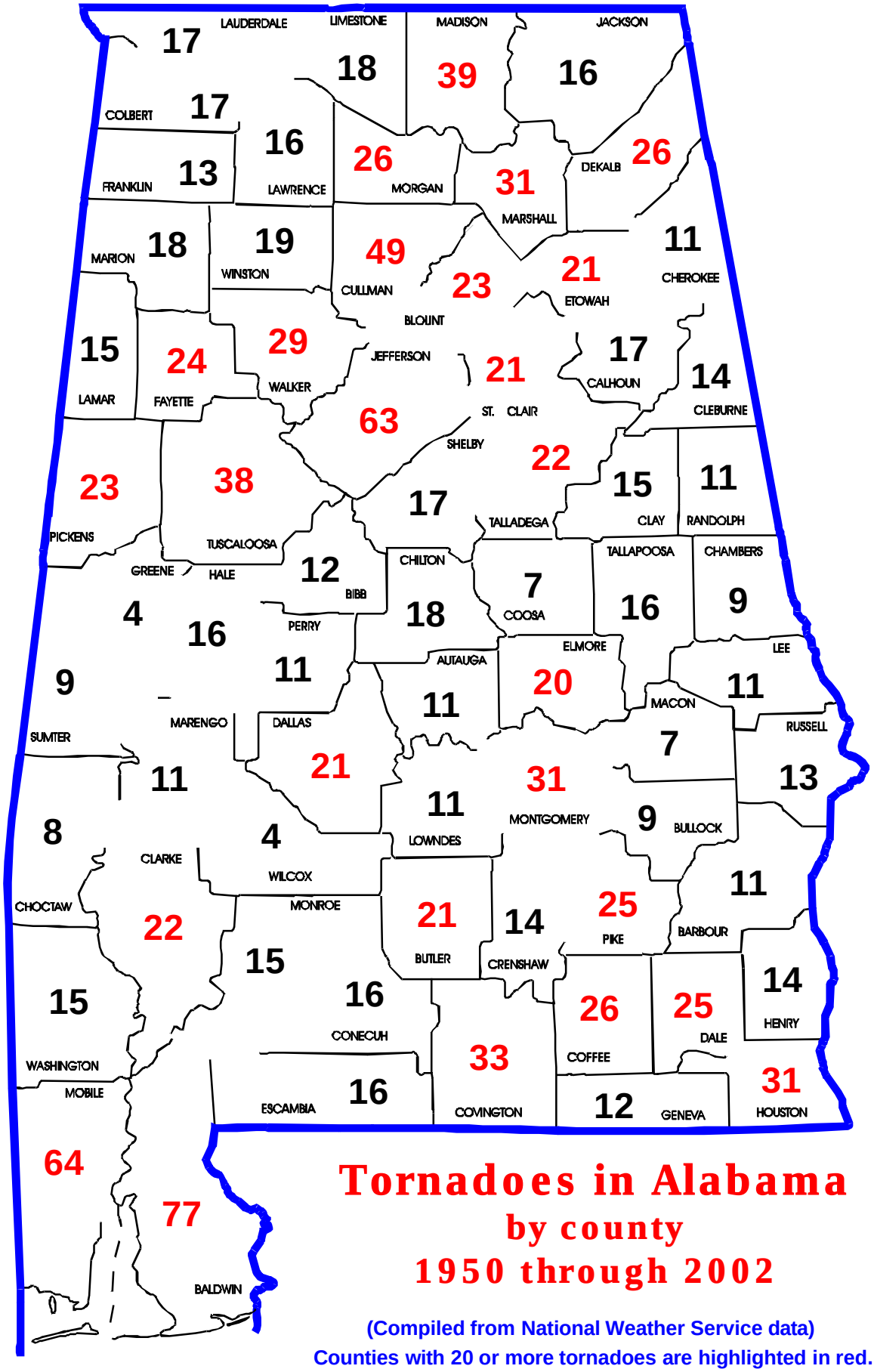
Homes or small buildings: go to the basement or to a small interior room such as a closet or bathroom or an interior hall on the lowest level. If available, get under something sturdy like a heavy table. Protect yourself from flying debris with pillows, heavy coats, blankets, or quilts. Use bicycle or motorcycle helmets, if available, to protect your head.

Schools, nursing homes, hospitals, factories, and shopping centers: go to a pre-designated shelter area. Basements are the best, but interior hallways on the lowest floor usually offer protection. Close all doors to the hallway for greater protection

Mobile homes or vehicles: leave them and go to a strong building. If there is no shelter nearby, get into the nearest ditch or depression and lie flat with your hands shielding your head.

Stay away from windows! Don't bother opening or closing them. It won't protect the structure anyway. You'll waste time and put yourself and possibly others at greater risk. Use those valuable seconds to find a place of safety.

Stay away from doors, windows, and outside walls. Protect your head!



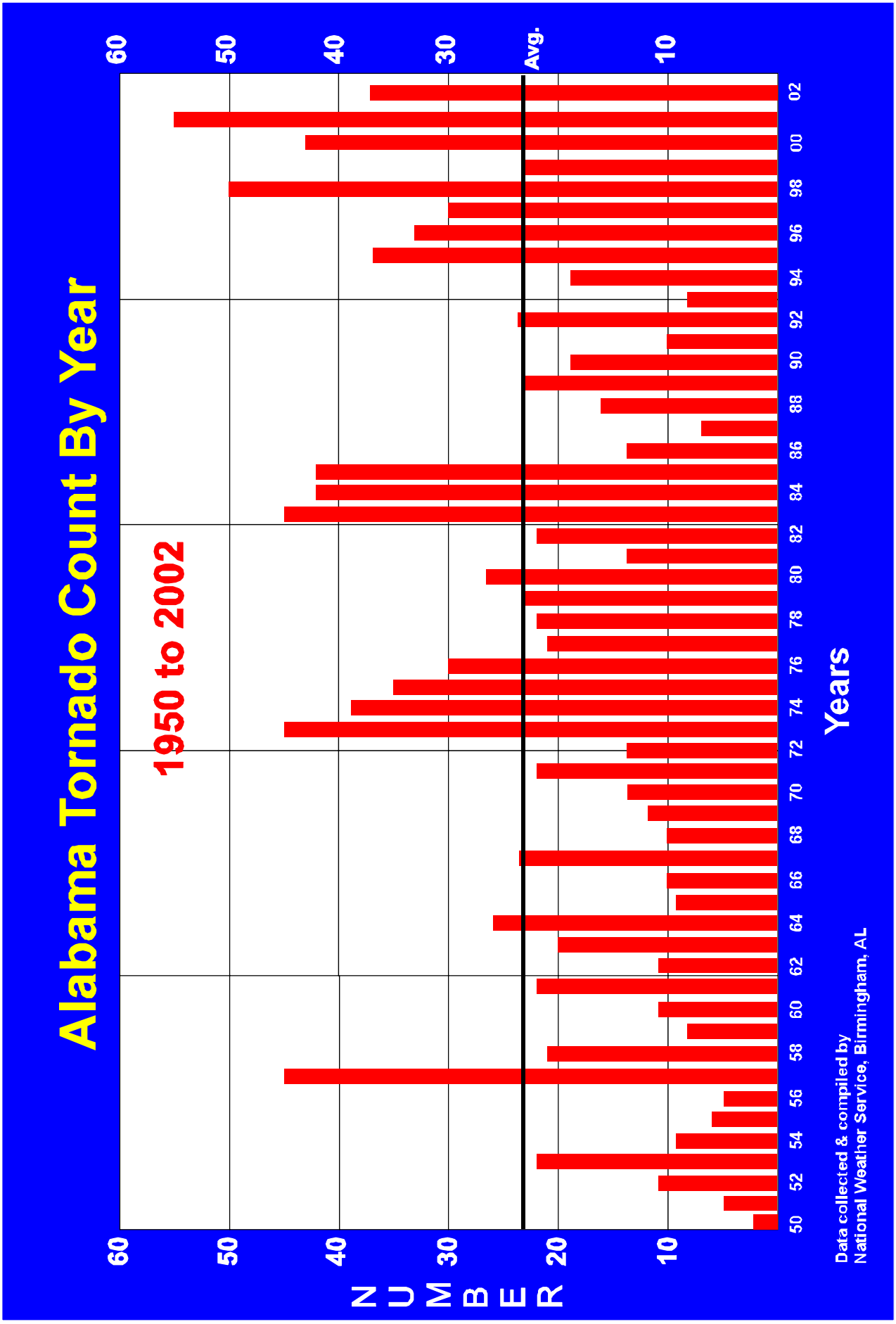
Tornadoes in Alabama

by county

1950 through 2002

(Compiled from National Weather Service data)

Counties with 20 or more tornadoes are highlighted in red.


Alabama Tornado Count By Year
1950 to 2002
Avg.
NUMBER
Years
60
50
40
30
20
10
50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 00 02
Data collected & compiled by
National Weather Service, Birmingham, AL

Thunderstorms - Common but Dangerous

Thunderstorm wind reached damaging force in Alabama at least 240 times during 2002 and caused millions of dollars worth of damage. Fortunately, no people were killed by damaging wind in 2002 but 2 injuries were reported.

Damaging thunderstorm wind events are more common than tornadoes in Alabama. In a typical year, Alabama is likely to experience 10 to 20 times as many wind events as tornado events. Not only can severe thunderstorms produce injury and damage from violent straight-line wind and hail, but tornadoes can develop very quickly from these storms. Severe thunderstorms will continue to take their toll on lives and property, but we can lessen their impact by taking severe thunderstorm warnings seriously.

A **severe thunderstorm** is defined as a thunderstorm producing wind at or above 58 mph and/or hail 3/4 of an inch in diameter or larger. Severe thunderstorm wind can gust to more than 100 mph, overturning trailers, unroofing homes, and toppling trees and power lines. While penny size hail denotes a severe thunderstorm, hail as large as grapefruit has occurred. The danger of serious injury or death from hail is not hard to imagine when you consider that a good-sized hailstone may fall at speeds reaching 110 mph.

Severe thunderstorms can strike any time of year, but, like tornadoes, are most frequent in the spring months of March, April, and May. Alabama also has a "secondary" severe weather season in November and early December. Severe storms that develop on a summer day are usually more isolated. However, some of the most dangerous and intense lightning may occur with summer storms. This is a fact well worth our attention since summer is the time of the year when outdoor activities are at a maximum.

The best defense against thunderstorms is to stay inside a substantial building. Thunderstorms do not usually last for a long time and will generally pass in less than an hour. When thunderstorms are expected, be sure to pick up loose objects around your home or business. Small items can become deadly missiles in strong wind, and flying debris can cause serious damage to other property.

Downbursts - a Second Cousin to Tornadoes

All damage is not caused by tornadoes. Reports immediately after a severe weather event usually attribute significant damage to a tornado. But strong wind, referred to as straight-line wind or downburst, is frequently responsible for damage equivalent to that from a weak to strong tornado.

Downburst refers to a small area of rapidly descending air beneath a thunderstorm that strikes the ground producing isolated areas of significant damage. Wind speeds in downbursts can exceed 100 mph and may be accompanied by a loud roar often mistakenly associated only with tornadoes.

Downbursts develop quickly with little or no advance notice and can come from thunderstorms whose radar signatures appear non-severe. There is no sure method of detecting the onset of these events, but atmospheric conditions have been identified which favor the development of downbursts. Using a plot of temperature, moisture, and wind with height, called an upper air sounding, meteorologists look for a very moist layer near the ground with a very dry layer in the mid levels of the atmosphere. Ice particles associated with a thunderstorm melt as they descend, cooling the air which leads to greater downward force. With both dry mid level air and moist air below the freezing level, the melting (cooling) process is enhanced leading to stronger downdrafts and downbursts. Unfortunately, surface conditions preceding a downburst event typically give no indication to the damaging wind potential.

As with other hazardous weather, our safety relies on being weather aware; stay informed with forecasts through NOAA Weather Radio.

Lightning - the Underrated Killer

Lightning was responsible for six deaths and 23 injuries in Alabama in 2002, the highest death in more than 20 years. Since 1990, lightning has killed 25 people and injured 239 in the state.

Lightning has been called "the under-rated killer," and rightfully so since it does not usually get headline attention. Nationally, the average toll in the United States is estimated to be around 100 deaths and 500 injuries. In a typical year, lightning will strike the U.S. over 21 million times and will claim more victims than tornadoes or hurricanes.

Every thunderstorm contains this potential killer. Whether it is the large spring-time severe storm or a more common summer afternoon variety, that electrical charge, which may reach 100 million volts, is always present and searching for the path of least resistance to complete the circuit. It might strike you, an isolated tree, or an object in the open. Keep in mind that you do not have to be standing directly beneath a cloud to be hit.

Especially vulnerable are outdoor group activities where we are often distracted from environmental clues. Every group or school involved in outside activities should have a plan than can be activated when the danger is present to keep participants safe.

Take time to learn lightning safety rules. That quick dash out in the open with a thunderstorm in the area may unnecessarily expose you to the possibility of being struck. Is it worth the risk?

Lightning Safety

If you are outside, get into an enclosed building; large, substantially constructed buildings tend to be much safer than smaller or open structures, or in an all-metal (not convertible) vehicle.

In general, fully enclosed, all metal vehicles with the windows rolled up provide good shelter from lightning. Avoid contact with metal.

Inside a home, avoid using the telephone except for emergencies. Also, stay away from windows.

AVOID being in or near high places and open fields, isolated trees, unprotected gazebos, rain or picnic shelters, baseball dugouts, towers, flagpoles, light poles, bleachers of any type, metal fences, convertible vehicles, golf carts, motorcycles, scooters, riding lawn mowers, or water (ocean, lakes, swimming pools, rivers, ponds, etc.).

Move away from open water or from open tractors or other farm equipment.

Stay away from wire fences, clotheslines, metal pipes, rails or other metallic paths which could carry lightning from some distance away.

In a forest seek shelter in a low area under a thick growth of small trees. In open areas, go to a low place such as a ravine or valley. Be alert for flash floods.

If you feel your hair stand on end, lightning may be about to strike. Stay on the balls of your feet but crouch down and make as low a target of yourself as possible. Do not lie flat on the ground.

Remember, there is no truth to the old myth that "lightning never strikes twice."

Know & Practice the 30-30 Rule

The '30/30' rule for lightning safety could save your life. The first '30' means that you need to take cover if you hear thunder within 30 seconds of the lightning flash ('flash to bang' ratio). Then wait at least 30 minutes after the last lightning flash or thunder in order to resume normal activity - the "all clear" signal. Lightning research has confirmed that consecutive lightning strikes can occur as much as six miles apart. People often do not perceive lightning to be close if it is two miles or more away, but the risk of the next strike being at your location may actually be very high. Many lightning casualties occur in the beginning as a thunderstorm approaches because people ignore these precursors. When thunderstorms are in the area but not overhead, the lightning threat can exist even if it is sunny at your location. Practice the '30/30' rule and be lightning safe !

Storm Spotters - Eyes & Ears for the Community

From Doppler radar used in the detection of severe weather to the Emergency Alert System (EAS) used to distribute critical weather information, technology permeates the warning system. But even with the technology, an important human element in the warning system is the storm spotter.

Storm spotters come from all walks of life, and their interest usually stems from two areas - an interest in weather and an interest in serving their community. Spotters are organized loosely around SKYWARN, a volunteer program developed many years ago by the National Weather Service to train and organize spotters in every community. Spotters may be more formally organized around local emergency management agencies or other local groups such as amateur radio clubs who work directly with the spotters in their local communities. Public service personnel from fire departments, rescue squads, and law enforcement agencies are also active in severe storm spotting activities.

Spotters remain critical to the warning process because they provide timely information on the weather that's happening at the ground, or ground truth. Satellite imagery and Doppler radar provide National Weather Service meteorologists with large amounts of information about the storm and its structure, information critical to the warning decision. But high tech equipment does not provide the specifics about the weather actually occurring at the ground. That's where spotters become the eyes and ears for the community. For example, National Weather Service Doppler radar can estimate hail size within a thunderstorm, but those values are for hail inside the thunderstorm, not the size of hail reaching the ground.

Storm spotters go through training provided by the National Weather Service to gain an understanding of storm structure. The training includes the climatology of Alabama tornadoes, details on the structure of the most severe thunderstorms known as supercells, exposure to visual clues often present prior to and during tornado events, and information on tornado safety and reporting procedures.

Spotters typically work in small groups organized around a county, or in some cases, around a grouping of several counties. Amateur radio operators compose one of the largest group of spotters inAlabama because of their ability to communicate using their radios even when power and conventional communication methods are knocked out. National Weather Service offices have established working relationships with the amateur radio community which includes radio equipment in NWS offices to communicate with spotters in the field. This communication network often provides rapid reports of severe weather as it occurs as happened on December 16th with the Tuscaloosa tornado. And it can provide essential communication with emergency management agencies when severe weather does happen.

Volunteer storm spotters are one of the most valuable assets in a warning system that is a complex interaction of various systems. Additional information on storm spotter activities can be found on the Internet at the NWS web sites (see page 21) and at www.alert-alabama.org.

2002 Alabama Weather Scoreboard

Weather-type	Number	Deaths
Tornadoes	37	13
Wind	243	0
Lightning	51	6
Hail	222	0
Flash Floods	35	0

Flooding and Flash Flooding

There were no flash flood related deaths or injuries in Alabama during 2002 in only 35 documented flash flood events due in part to the dry conditions experienced for much of the year. During the past ten years, 35 people have lost theirlivesinflashflooding. Onaverage,flooding and flash flooding account for about as many deaths nationally each year as lightning, tornadoes, and hurricanes combined! We must ensure that our preparedness plans include every possible step that can be taken to prevent the tragic lossoflifethatcanoccurduringfloods.

Advance planning is certainly important, but obvious dangers should not be underestimated. These include such activities as allowing children to play in or near a swollen drainage ditch or small stream, or attempting to drive or walk across flooded roadways or bridges. Such acts take a needlesstollbecause the powerful force of moving water is easily underestimated.

Floods, similar to tornadoes and severe thunderstorms, are generally most frequent and intense during the late winter and spring, but can develop at any time of the year when conditions are right. The flooding that occurred during March and April of 1979 claimed 15 lives in Alabama. Also, the flooding of February and Marchof1990claimed16lives.

While flooding can be divided into two general categories, flash floods and mainstream flooding along rivers and streams, both hold the potential for causing death, injury, and the destruction of property. Our safety plan must includewaystodealwitheachtype.

River flooding along major streams is generally slower to develop than flash flooding. There are exceptions to this, especially near headwater areas of smaller rivers where thetime lag between the runoff from heavy rain and the onset of flooding can bevery short. On theother hand, it may take several days or maybe a week for the flood crest to pass downstream points on majorrivers.

The National Weather Service issues River Flood Warnings when rivers are expected to rise above flood stage. Crest forecasts for specific points downstream are given along with knownfloodstagesforeachpoint. It isimportant that everyone living near a river know how to react to the various flood crest forecasts that may be issued. While there is more warning lead time in most cases than with flash floods, planning and preparation are essential to safeguard life and property from the dangers of mainstreamflooding.

Flash flooding can occur almost anywhere in Alabama. Flash flooding can but does not necessarily occur in the classic "wall-of water" concept. Simply stated, it is too much water in tooshortatime. Whether it occurs from excessive rainfall or possibly a dam failure, flooding develops very quickly. Rapidly rising water in a low area or near a drainage ditch or small stream may not be as spectacular as a rushing wall of water down a canyon, but it can be just as deadly. And with our changeable weather, we have gone from drought conditions to flashfloodingwithinafewhours.

The National Weather Service issues a **Flash Flood Watch** when conditions are present that could result in flash flooding within the designated watch area. A **Flash Flood Warning** is issued when flash flooding has been reported or is imminent. Preparedness plans must include being familiar with these terms as wellasallfloodsafetyrules.

Also, youshouldbe familiarwith the land features where you live, work, orfrequently visit. Is it in a low area, near a drainage ditch or small stream,orbelowadam?

Flash flooding sometimes develops with no advance warning. During periods of heavy rain, it is best to think flash floodingandbeready to respond quickly if flooding is observed or a warningisissued.

Remember, floods come in varying degrees of intensity. Although theonesyoumay have experienced in the past may have caused little concern, that major event could still be ahead.

Flooding and Flash Flooding Safety

< During periods of heavy rain, stay away from streambeds, drainage ditches, and culverts.

< Never drive your car into water of unknown depth. Most flash flood deaths occur when people drive their vehicles into flood waters. Never go around barricades.

< Water runs off streets and parking lots very rapidly causing natural and man-made drainage systems to overflowwith rushing flood waters. These flood waters carry rocks, trees, trash, and other debris that can be deadly to someone in their path.

< Move to high ground should flooding threaten your area. Heavy rain should be a signal to alert you to possible flooding danger. If you live or work in a flood-prone area, or near streams or drainage ditches, remain alert during periods of heavy rain.

< Stay out of flooded areas. The water may still be rising, and the water is usually swift. A rapidly flowing stream or ditch can sweep you off your feet or even sweep your car downstream. Children are especially vulnerable and should not be allowed to play or walk in flowing water.

< Be especially cautious at night, when it is harder to recognize flood dangers.

< If your vehicle stalls, abandon it and immediately seek higher ground. Flood water may rise very quickly and could cover the vehicle or sweep it away.

< Water is a very powerful force and should never be underestimated.

Seventy-five percent of all flash flood deaths occur in vehicles. Never venture into areas where water covers the road to an unknown depth.

NOAA Weather Radio

the voice of the National Weather Service

NOAA Weather Radio, the voice of the National Weather Service, provides weather information continuously, 24hoursa day,everyday of theyear.

To receive the broadcasts originating from the National Weather Service, a special radio capable of receiving signals in the Very High Frequency (VHF) public service band is required. In Alabama, frequencies from 162.400 to 162.550 megahertz are used for NOAA Weather Radio broadcasts. Alabama is served by 17 transmitters which places approximately 95 percent of the people in the state withinrangeofaweatherradiotransmitter.

National Weather Service personnel prepare weather information that is broadcast in three to five minute cycles. Broadcasts include area forecasts for thenextsevendays,currentweatherconditions,radar reports, weather summaries, climatic data, river and lake stage readings and other weather information. The broadcasts are updated frequently to provide the listener withthelatestinformation.

NOAA Weather Radio is useful any time, but becomes evenmoreimportantduringsevereweather. During threatening weather, normal broadcasts are interrupted and focus shifted to the local severe weather threat. Watches, warnings, and statements are given the highest priority and are frequently updatedasconditionschange.

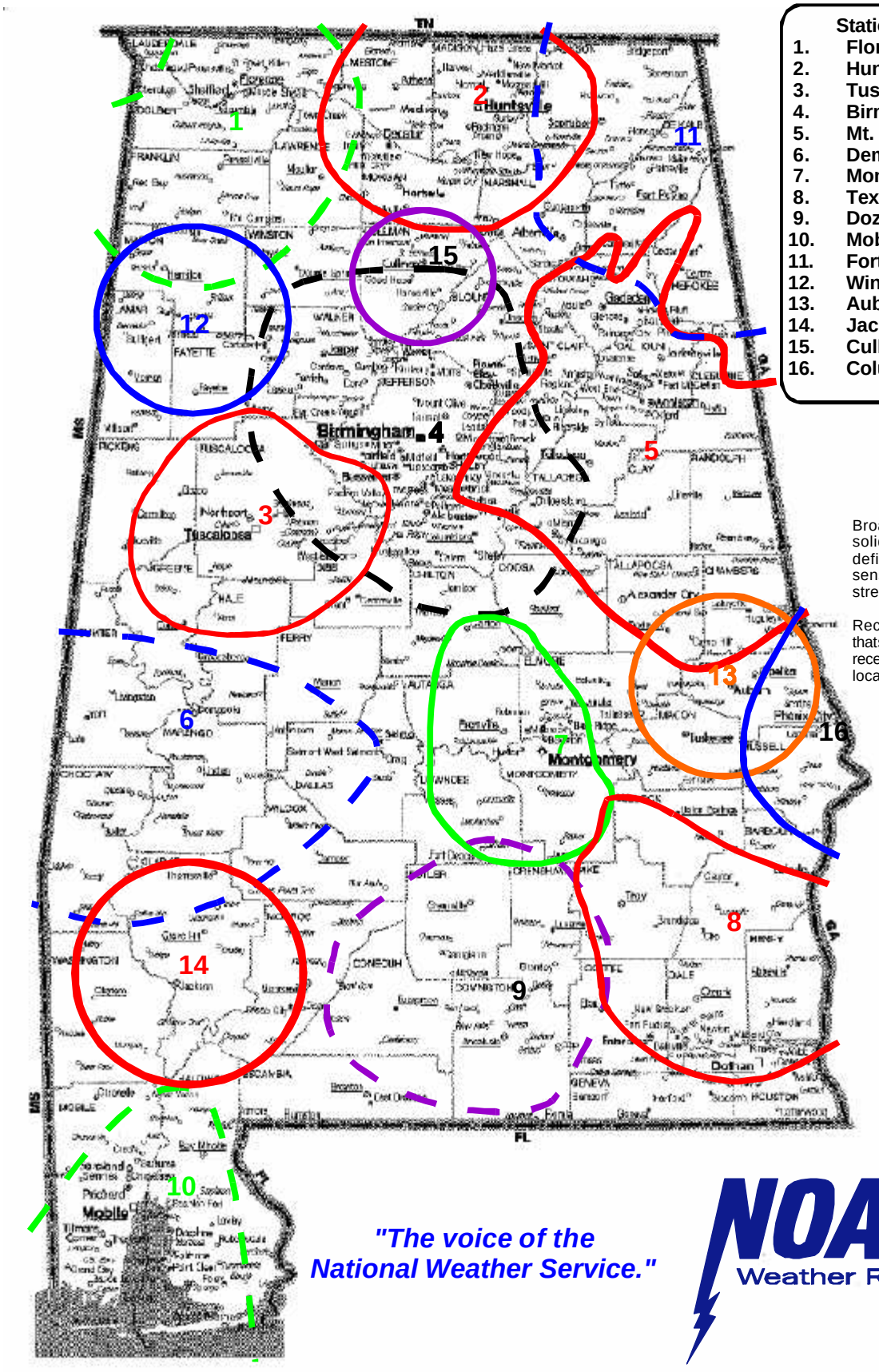
In an emergency, each NOAAWeather Radio station will transmit a warning alarm tone signal followed by information on the emergency situation. This signal is capable of activating specially-designed receivers, eitherbringingupthevolumeorproducinga visual and/or audible alarm. Not all weather band receivershavethis capability, butallradiosthatreceive NOAA Weather Radio can receive the emergency broadcasts. The warning alarm device is tested each Wednesday, usually between 11 am and noon, weather permitting.

Afeatureavailableinthenewest weatherradio receivers called SAME for Specific Area Message Encoding,allowsthemtobeprogrammedforreception of warning and watch messages for certain counties within the broadcast area. Weather radio broadcast areas usuallycover several counties, so with a SAME-capable weather radio, you will be alerted only for weather inyourarea.

Commercial radio and television stations and cable companies are urged to use NOAA Weather Radio and may freely rebroadcast Weather Radio broadcasts. NOAAWeather Radioisalsoamajorpart of the Emergency Alert System (EAS) that speeds critical weather warning information through commercialbroadcastoutlets.

NOAA Weather Radio Serving Alabama

Location	Frequency	Location	Frequency
Birmingham	162.550 MHZ	Mt. Cheaha	162.475 MHZ
Demopolis	162.475 MHZ	Dozier	162.550 MHZ
Huntsville	162.400 MHZ	Fort Payne	162.500 MHZ
Florence	162.475 MHZ	Texasville	162.475 MHZ
Montgomery	162.400 MHZ	Tuscaloosa	162.400 MHZ
Mobile	162.550 MHZ	Cullman	162.450 MHz
Winfield/Guin	162.525 MHz	Jackson	162.500 MHz
Auburn	162.525 MHz		
Columbus, GA	162.400 MHZ	Meridian, MS	162.550 MHZ



Stations & Frequencies

1.	Florence	162.475 MHz
2.	Huntsville	162.400 MHz
3.	Tuscaloosa	162.400 MHz
4.	Birmingham	162.550 MHz
5.	Mt. Cheaha	162.475 MHz
6.	Demopolis	162.475 MHz
7.	Montgomery	162.400 Mhz
8.	Texasville	162.475 MHz
9.	Dozier	162.550 MHz
10.	Mobile	162.550 MHz
11.	Fort Payne	162.500 MHz
12.	Winfield	162.525 MHz
13.	Auburn	162.525 MHz
14.	Jackson	162.500 MHz
15.	Cullman	162.450 MHz
16.	Columbus, GA	162.400 MHz

Broadcastareasshownbythe solidanddashedlinesare definedbya5micro-voltreceiver sensitivitylevelbasedonfield strengthtests.

Receptionareasmayvaryfrom thatshown basedonqualityof receiver,typeofantenna,and localterrain.

"The voice of the National Weather Service."

NOAA Weather Radio

Severe Weather Awareness Week In Alabama, 2003

National Weather Service Warning and Forecast Office
465 Weathervane Road, Calera, AL 35040 (205)664-3010

Safety After the Storm

Safety does not stop after the storm has passed. Everyone should be aware of the many dangers that might existafterbadweatherhasmovedoutofthearea.

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Remain calm and try to deal with immediate problems such as care for injured people until professionalhelp canarrive.

Do not light matches or turn on electrical switches if you suspect damage to your home or business.

Carefully check for damage aroundyour home or business. If you smell gas or suspect a leak, turnoffthemaingasvalve,openwindows,andgeteveryoneoutofthestructurequickly.

Stay awayfrom downed lines. Do not attempt to touch ormovethem. Keep children and pets awayfromdownedlines. Reportdownedwirestoyourlocalpowercompany.

People should know where to find the main electrical fuse or breaker box, water service main, andnaturalgasmeters. Learnhowandwhentoturntheseutilitiesoff. Haveaprofessionalturn utility servicebackon.

Cleanuporropeoffdangerousareassuchasnearbrokenglass.

Trees and tree limbs may be weakened and could fall unexpectedly, so use caution when walking throughtreedareaswherehighwindortornadoeshavegone.

Locate your emergency supply kit with essential documents and materials for taking care of yourself afterastormdamagesyourhome.

Avoidusing candles. While inexpensive, candles areopenflames that can startfires. And in a disaster, responseagenciesarealreadyoverloaded.

Besurenottoforgetaboutcaringforpetsafteradisasterhasoccurred.

Alabama Tornado Statistics

Average Number per Year	**23**
Greatest Number in a Year	**55 in 2001**
Smallest Number in a Year	**2 in 1950**
Average Number of Deaths	**7**
Average Number of Days with Tornadoes	**11**

[statistics for period from 1950 to present]

Tornado Drill - Your Chance to Practice

As part of Alabama Severe Weather Awareness Week, the National Weather Service and the Alabama Emergency Management will conduct a statewide tornado drill on Wednesday, February 19th. Should there be an actual threat of severe weather that day, the drill will be postponed until Friday, February 21st. This drill is a coordinated effort among a number of states in the Southeast United States.

The purpose of the drill is to give Alabamians an opportunity to determine if they can adequately receive a watch or a warning and to practice the actions necessary for survival in a real tornado threat. Every person in the state ofAlabama is urged to take part in this drill whether at home, at work, at school, or in your car. The drill does not have to take long, but advance planning can pay tremendous dividends in lives saved during real tornado emergencies.

The National Weather Service and the Alabama Emergency Management Agency ask that all media outlets, especially radio and television, actively participate in the drill by using whatever procedures would normally be followed during actual severe weather events. Local emergency managers are encouraged to sound the alarm using whatever means are normally used in severe weather emergencies including the activation of outdoor sirens. While the day of the drill is known, the National Weather Service will not issue the actual watches and warnings at a certain time in order to simulate the type of conditions that would be expected in a real event. The National Weather Service plans to activate EAS during the drill.

School administrators, employers in all phases of commercial operations, people at home - everybody is urged to listen for and to consider the actions you would take in the event of a tornado threat at their location. Safety rules are covered in earlier pages, but the drill is an opportunity for people to put their knowledge into action. Do you really know what to do? Can you get a warning? Can you hear sirens? Do you have a battery powered radio? Is NOAA Weather Radio available where you work or live?

Drills like this are an essential part of advance preparation. And so is feedback. The National Weather Service is interested in hearing comments about the drill. For the sake of collection, comments or responses should be addressed to:

National Weather Service Forecast Office
Attention: Warning Coordination
465 Weathervane Road
Calera, AL 35040

Print media outlets are asked to help with this element by printing material ahead of the drill asking people to respond with comments.

There is much that goes on in our attempt to keep everyone safe and informed about severe weather, but ultimately, responsibility for our personal safety rests with each individual and knowing what to do when seconds count !

Special Note to Newspapers

If you need black and white versions of the graphics in this booklet, please contact the Warning Coordination Meteorologist at the Birmingham office at 205-664-3010, and camera ready images will be sent to you.

Contacts for More Information

This booklet contains materials useful during the Severe Weather Awareness Week campaign and at other times, too. You are invited to contact the National Weather Service, state and county emergency management agencies, and local Red Cross chapters for interviews and for answers to your questions.

National Weather Service personnel are available for severe weather awareness programs to civic and industrial organizations, schools, hospitals, and others interested in severe weather safety. Representatives of your local emergency management agency and the nearby Red Cross Chapter may also be available for assistance. For more information contact the National Weather Service Office serving your area, your county or state emergency management agency, or a nearby Red Cross Chapter.

Each county inAlabama is served by a National Weather Service office as identified here:

For people in Autauga, Barbour, Bibb, Blount, Bullock, Calhoun, Chambers, Cherokee, Chilton, Clay, Cleburne, Coosa, Dallas, Elmore, Etowah, Fayette, Greene, Hale, Jefferson, Lamar, Lee, Lowndes, Macon, Marengo, Marion, Montgomery, Perry, Pickens, Pike, Randolph, Russell, St. Clair, Shelby, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, and Winston counties, contact:

Brian Peters or Ken Graham	**Birmingham**	**205-664-3010**

For people in Colbert, Cullman, Dekalb, Franklin, Jackson, Lauderdale, Lawrence, Limestone, Madison, Marshall, and Morgan, contact:

Tim Troutman or John Gordon	**Huntsville**	**256-890-8503**

In southwest Alabama, people in Baldwin, Butler, Choctaw, Clarke, Conecuh, Covington, Crenshaw, Escambia, Mobile, Monroe, Washington, and Wilcox, counties, contact:

Gary Beeler or Randall McKee	**Mobile**	**251-633-6443**

In southeast Alabama, people in Coffee, Dale, Geneva, Henry, and Houston counties, contact:

Bob Goree or Paul Duval	**Tallahassee, FL**	**850-942-8999**

For the Alabama Emergency Management Agency, contact across the state can be made with:

Scott Adcock	**Clanton**	**205-280-2247**

For the American Red Cross, contact your local chapter or:

Cindy Bahri	**Birmingham**	**205-458-8263**
Laura Howe	**Birmingham**	**205-458-8245**

For the Alabama Department of Education, contact:

Information & Communication Office	**Montgomery**	**334-242-9950**

Weather on the Information Superhighway

National Weather Service offices serving Alabama have a presence on the World Wide Web. You can access a wealth of information at the following

Birmingham	***http://www.srh.noaa.gov/bmx/***
Huntsville	***http://www.srh.noaa.gov/hun/***
Mobile	***http://www.srh.noaa.gov/mob/***
Tallahassee	***http://www.srh.noaa.gov/tlh/***

Surf by and take a look!

2002
Alabama Weather Scoreboard

Weather-type	Number	Deaths
Tornadoes	37	13
Wind	243	0
Lightning	51	6
Hail	222	0
Flash Floods	35	0

IMPORTANT INFORMATION !!
PREPARING FOR VIOLENT WEATHER
FROM THE
NATIONAL WEATHER SERVICE
OPEN IMMEDIATELY !

National Weather Service
465 Weathervane Road
Calera, AL 35040

ADDRESS SERVICE REQUESTED

BULK RATE
POSTAGE & FEES PAID
National Oceanic &
Atmospheric Administration
Permit No. G-19

Weather information
direct from the
National Weather Service

NOAA Weather Radio